

## REMARKS

This communication is a full and timely response to the final Office Action dated March 17, 2009. Claims 1-3, 5-10, and 13-25 remain pending where claims 11 and 12 were previously cancelled. By this communication, claims 1-3, 5, 7, 10, 13, 16, 18, 20, and 22-24 are amended and claim 25 is added. Support for the amended subject matter can be found, for example, in the paragraph bridging pages 4 and 5 and at page 6, lines 20-24 of Applicants' disclosure.

In numbered paragraph 1 on page 2 of the Office Action, claim 22 is objected to under 37 C.F.R. §1.75 for allegedly being a duplicate of claim 21. Applicants have addressed the substance of this objection through the claim amendment provided herein. As a result, this objection is moot and its withdrawal is respectfully requested.

Applicants' claims were variously rejected under 35 U.S.C. §§102 and 103. In particular, claims 1-10 and 21-24 stand rejected for alleged anticipation by *Sussman* (EP 0440384), claims 1-9, 13, 14, 16, 17, 18, and 20-22 are rejected for alleged anticipation by *Blangetti* (U.S. Patent Pub. No. 2004/0069466), and claims 13, 14, 16, 17, 19, and 20 are rejected for alleged unpatentability over the *Sussman* patent in view of the *Blangetti* published application. Applicants respectfully traverse these rejections.

As provided in the claim listing above, each of independent claim 1, 7, 13, and 16 similarly recite, in part, forming a protective layer on the amorphous carbon layer.

Contrary to the Examiner's position, neither the *Sussman* patent nor the *Blangetti* published application when applied individually or in combination disclose or suggest the aforementioned features.

With regard to the Examiner's application of the *Sussman* patent, Applicants respectfully submit that this reference does not disclose the structure as being a radiator, but rather discloses that the disclosed structure can be used as a heat sink. One of ordinary skill would understand that heat sinks generally operate by conduction or convection rather than through radiation. This document provides neither guidance nor examples, which suggest that the resulting device operates in any manner otherwise. In addition, the *Sussman* patent fails to disclose or suggest that the diamond-like carbon layer is applied to the surface of the substrate relative to the flow of heat in a device. Stated differently, the *Sussman* patent does not disclose or suggest that an amorphous carbon layer is formed on a radiating surface of the substrate. Moreover, while the *Sussman* patent does disclose the use of protective layers, these protective layers are formed on intermediate surfaces between the diamond-like carbon layer and the substrate. There is no teaching or suggestion that the protective layer can be or is otherwise desired to be formed or applied on the diamond-like carbon layer. Because the *Sussman* patent fails to disclose the aforementioned features and likewise does not anticipate Applicants' claims.

With regard to the *Blangetti* published application, this reference is directed to a technique in which alternate relatively hard and relatively soft layers or diamond-like carbon are formed on a carbide-coated surface of a heat exchanger. The *Blangetti* published application fails to disclose or suggest that a protective layer is formed on the amorphous carbon layer. Moreover, with respect to claims 13 and 16 the *Blangetti* published application fails to disclose or suggest a layer structure in which a soft layer is in contact with the carbide layer. Rather, in each instance this

reference discloses that it is the hard layer and not the soft layer that is in contact with the carbon-coated substrate.

Both of independent claims 13 and 16 are amended to clarify the use of a soft amorphous carbon. As provided in Applicants' disclosure, the term "soft" is defined as having an ability to be scratched with a pair of tweezers, i.e., manually. In contrast, no such soft amorphous carbon film or layer is disclosed in the *Blangetti* published application. Rather, this reference discloses that the soft layer of amorphous carbon has a Vickers hardness (HV) of 600 or more. One of ordinary skill would understand that this value represents a very hard amorphous carbon layer as compared to the truly amorphous non-crystalline material used and recited in Applicants' claims. Moreover, a material having a Vickers hardness of 600 or more is harder than most metals (steel generally has an HV in the range of 50 to 200). Thus, it is reasonable to conclude that the soft amorphous carbon described in the *Blangetti* published application cannot be deemed "soft" as defined in Applicants' disclosure.

Applicants are fully aware that during examination claims must be given their broadest reasonable interpretation. This "interpretation", however, must be consistent with Applicants' Specification. *Phillips v. AWH Corp.*, 415 F.3d 1403 75 USPQ2d 1321 (Fed. Cir. 2005). In *Phillips*, the Court found that when employing the "broadest reasonable interpretation" standard, **the PTO determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction "in light of the specification as it would be interpreted of one of ordinary skill in the art."** *In Re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 [70 USPQ2d 1827] (Fed. Cir.

2004). Indeed, the rules of the PTO require that application claims must "conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support for antecedent basis in a description so that the meaning of the terms in the claims may be ascertainable by reference to the description." 37 CFR 1.75 (d)(1), 415 F.3d at 1316, 75 USPQ2d at 1329. Going forward, Applicants respectfully submit that any interpretation of Applicants' claimed soft amorphous layer must be made in light of the description of the same provided in Applicants' disclosure.

On further analysis of the applied documents, there was no suggestion in the *Sussman* patent that the amorphous carbon layer is indeed "soft". The whole tenor of the disclosure in the *Sussman* patent is in using a diamond-like carbon coating that is hard and tough. This requirement can be clearly deduced when the *Sussman* patent describes that the coating is applied to a cutting tool as a wear-resistant surface (see col. 1, lines 17-20).

In summary, neither the *Sussman* patent nor the *Blangetti* published application disclose a device having a layer structure as recited in Applicants' claims. First, neither of the applied references discloses the use of a soft amorphous layer nor the use of a protective layer as recited in Applicants' claims, where applicable. While the applied references may disclose the use of a protective layer and a soft amorphous carbon layer, the sequence of these layers as described in the finished product is not analogous to the layer sequence recited in Applicants' claims. Moreover, it does not appear to be a teaching or suggestion in either of these references or of record that would lead one of ordinary skill to conclude that the layers are interchangeable such that the same result can be achieved.

Based on the foregoing remarks, Applicants respectfully submit that neither a *prima facie* case of anticipation nor obviousness has been established.

To properly anticipate a claim, the document must disclose, explicitly or implicitly, each and every feature recited in the claim. See Verdegall Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Examiner is also reminded that the Office has the initial burden of establishing a **factual basis** to support the legal conclusion of obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). For rejections under 35 U.S.C. § 103(a) based upon a combination of prior art elements, in KSR Int'l v. Teleflex Inc., 127 S.Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007), the Supreme Court stated that "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some **articulated reasoning with some rational underpinning** to support the legal conclusion of obviousness." In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (emphasis added). For at least the foregoing reasons, withdrawal of this rejection is respectfully requested. Because of these reasons and those discussed in detail above, withdrawal of these rejections is respectfully requested.

**CONCLUSION**

Based on the foregoing amendments and remarks, Applicants respectfully submit that claims 1-3, 5-10, and 13-25 are allowable and this application is in condition for allowance. In the event any unresolved issues remain, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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